

ABSTRACT

SURFACE TREATMENT OF AN OXIDE LAYER TO ENHANCE ADHESION OF A RUTHENIUM METAL LAYER

A method for forming a ruthenium metal layer on a dielectric layer comprises forming a silicon dioxide layer, then treating the silicon dioxide with a silicon-containing gas, for example silicon hydrides such as silane, disilane, or methylated silanes. Subsequently, a ruthenium metal layer is formed on the treated dielectric layer. Treating the dielectric layer with a silicon-containing gas enhances adhesion between the dielectric and the ruthenium without requiring the addition of a separate adhesion layer between the dielectric layer and the ruthenium metal layer.